BULLETIN

of the

ONTARIO COLLEGE OF PHARMACY

Vol. VII, No. 5 | TORONTO, Ontario | November, 1958
H. J. Fuller, Editor

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H. J. Fuller, Editor

The Ontario College of Pharmacy is the pharmaceutical licensing body for the Province of Ontario, Canada. All pharmacists licensed in Ontario are *IPSO FACTO* members of the College.

The majority of contributors to the Bulletin are members of the Faculty of Pharmacy, University of Toronto. However, contributions are welcomed from all members of the College.

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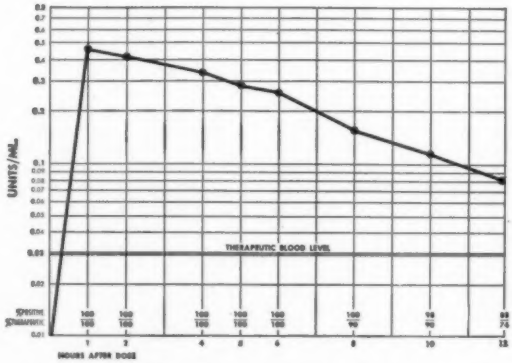

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In Memoriam

ROBERT OSCAR HURST

The recent passing of Dean R. O. Hurst removes from our midst a leading figure in Canadian Pharmacy during the past forty years.

Robert Oscar Hurst was born in the village of Painswick in a lovely rural section of Simcoe County. His primary and secondary education was obtained at the little country school near his home, and at the High School at Newmarket.

Like so many of our professional men, he started life as a teacher, and taught for some time in rural schools in York and Simcoe counties.

His first contact with pharmacy was when he entered upon his apprenticeship with the late Mr. A. E. Patterson, at Allandale, Ontario. In 1914 he graduated from the University of Toronto, with one of the most brilliant records ever achieved in Pharmacy in Ontario. He commenced his practice in the city of Toronto at the corner of Carlton and Jarvis Streets. He was early looking for wider fields in Professional Pharmacy, and was associated with his very great friend the late William Harrison, in the early days of the firm of Ayerst, McKenna and Harrison. His thoughts turned to his first love - teaching. He became a part-time lecturer in 1915 and in 1934 joined the teaching staff of the Ontario College of Pharmacy as a full-time professor. On the retirement of Dean Heebner, in 1937, he became Dean.

Dean Hurst's fine record as a teacher was an enviable one. He instilled in his students a sense of the honoured place of Pharmacy in medical and allied health fields, and inculcated upon them the importance of the place they as pharmacists should hold in the social life in which they would move, on graduation. To this may be ascribed the honoured and responsible positions that many of his graduates hold throughout our country to-day.

Dean Hurst gave unstintingly of his time to many of the organizations of Pharmacy. He was among the founders of the Canadian foundation for the Advancement of Pharmacy, where he served for some years as a Director, and also on the special Committee on Pharmaceutical Education and Research.

He served as Chairman of the Canadian Conference of Pharmaceutical Faculties. He was a member of the Canadian Committee on Pharmacopoeial Standards. For many years he was on the Advisory Board of the Proprietary Medicine Division of the Department of National Health and Welfare.

Among his hobbies were reading, particularly biography, and the study of the origin and history of words. One of his friends said of him, "He was one of a small band of men who can sit down with a dictionary and enjoy digesting a page of it." He became greatly sought after as an after-dinner speaker. One of the University Professors who was in no way associated with pharmacy said recently that those talks of Dean Hurst were one of the best public relations features the Ontario College of Pharmacy ever had.

Another of his hobbies was gardening, and anyone who visited his summer home, at Painswick, prior to the last war, knew something of how successful he was as a horticulturist.

The great versatility of the man and his wide interests were exhibited in the fact that while he was a great student of such deep subjects as etymology, he was also greatly interested in legerdemain. He was no mean prestidigitator and as such was also an active member of the Toronto Hat and Rabbit Club.

I first knew Dean Hurst when I came on the Council, and more particularly during my time as Chairman of the Education Committee.

But I knew him best when I was Registrar. Every morning on his way to his own office he would call at mine, to tell me of some new anecdote he had heard, some new book he had just read, some new word he had tracked down. My desk contains cards on which I made note of words with which he "stumped" me. I valued these happy minutes. They were bright spots, stimulating moments, in what might otherwise have been a routine day.

It was then that I learned to appreciate more fully his extreme friendliness, and his generous spirit. All of these things, and more, make it easy to understand why such a wide circle of friends to-day mourn his passing.

H. M. CORBETT.

ANALYSIS OF PROFITABILITY OF ONTARIO PHARMACIES 1957

In September, 1957 we published a chart something similar to the one on the next page. It compared pharmacies in Ontario with total income above the standard proprietor's compensation (see the final chart, page 50, C.Ph.J., Sept., 1958) with those with total income below standard proprietor's compensation. This year we have modified the approach slightly. In each one of the four Sales categories, A,B.C. and D. a. is the average of the pharmacies with total income below the standard, b. those with net profit between 1% and 5% of total sales, and c. those with net profit above 5% of sales. By net profit we mean the amount left over after standard proprietor's compensation has been taken out of total income.

A.—Sales Volume $20,000 to $50,000

Nine pharmacies in this group were below standard, 10 produced a profit between 1% and 5% and 7 a profit over 5% of sales. Comparing the a. and c. groups the a. group paid 6.7% more for merchandise and incurred 4.2% more expenses (exclusive of proprietor's salary) than the c. group. This nearly 11% differential multiplied by the average sales of the a. group $34,153 amounts to nearly $3,800. True there is a differential of a little over $5,000 in sales between the two groups but this is not sufficient to cause such a large differential in either the cost of goods sold nor the expenses. Comparing the b. group with the c. group the differential in the cost of goods sold is lessened to 2.9 and expenses to an even 2%. This almost 5% differential multiplies by the sales volume of $40,000 accounts for the differential of roughly $2,000 in total income between the two groups.

B.—Sales Volume $50,000 to $75,000

Again there are nine pharmacies below standard but whereas 35% of group A are below standard only 20% of group B are below standard. The differential between the a. group and the c. group in the cost of goods sold is over 6% of sales and the differential in expenses over 5% for a total of over 11%. The average sales of the nine members of the A. group is over $6,000 more than the c. group hence the potential loss is even greater. The differential in these two items amounts to more than $6,000. In the A group a large part of the differential in expenses is in miscellaneous expenses and hence unidentifiable but in the B group the differential in expenses can be identified as 3.4% as employees' wages and 1.4% as rent. At least employees' wages is a controllable item. Quite apparently the members of the c. group spend approximately $4,000 on employees' wages, not enough for a full time pharmacist while the members of the a. group paying 10% of sales as employees' wages apparently employed full-time pharmacists. It would appear that with sales volume below $75,000 a year a pharmacist cannot afford to pay the wages of a full-time pharmacist unless he is satisfied with a total income for himself not any greater or even less than he pays his graduate pharmacist.

ONTARIO 1957

No. of Stores	Cost of Goods Sold	Employees' Wages	Rent	Miscellaneous Expenses	All Other Expenses	Total Expenses*	TOTAL INCOME	Total Income as a % of Sales	Average Sales	Average Inventory	Number of Prescriptions	Sales of Prescriptions	Price per Rx	Rx Sales as a % of Total Sales
A						**Sales Volume $20,000 to $50,000**								
a. 9	73.0%	5.3%	1.7%	2.0%	7.1%	16.1%	$ 4,500	13.1%	$34,153	$ 9,881	1,996	$ 5,492	$2.75	13.2%
b. 10	69.1%	4.8%	2.2%	1.4%	5.5%	13.9%	$ 6,895	16.9%	$40,785	$ 9,619	2,044	$ 5,470	$2.67	12.9%
c. 7	66.3%	4.8%	1.7%	1.0%	4.4%	11.9%	$ 8,948	21.9%	$40,809	$10,256	1,902	$ 5,319	$2.79	13.5%
B						**Sales Volume $50,000 to $75,000**								
a. 9	72.2%	10.0%	2.7%	1.8%	5.2%	19.7%	$ 5,747	8.6%	$67,021	$10,655	3,642	$10,103	$2.77	15.9%
b. 19	69.4%	8.9%	2.0%	1.5%	3.8%	16.2%	$ 8,408	13.4%	$62,537	$11,531	3,888	$11,156	$2.86	18.1%
b. 16	66.0%	6.6%	1.3%	1.3%	5.3%	14.5%	$11,989	19.6%	$60,964	$11,762	4,297	$10,558	$2.45	17.2%
C						**Sales Volume $75,000 to $100,000**								
a. 7	72.0%	8.5%	3.8%	2.0%	5.1%	19.4%	$ 6,749	7.9%	$85,556	$14,628	7,988	$20,965	$2.62	24.9%
b. 8	69.4%	11.0%	2.1%	1.8%	4.7%	19.6%	$10,554	11.3%	$92,779	$17,156	5,404	$15,615	$2.88	16.6%
c. 15	65.9%	8.6%	2.2%	1.4%	4.3%	16.5%	$14,815	17.3%	$85,515	$17,951	10,281	$28,431	$2.76	31.4%
D						**Sales Volume Over $100,000**								
a. 4	67.3%	16.1%	1.3%	1.7%	7.1%	26.2%	$ 7,994	6.4%	$125,542	$26,054	7,260	$20,865	$2.87	15.8%
b. 17	64.3%	15.3%	2.8%	2.3%	6.0%	26.4%	$13,502	9.2%	$146,687	$25,018	12,702	$34,926	$2.74	23.5%
c. 34	66.8%	11.3%	1.5%	1.7%	4.5%	19.0%	$22,895	14.0%	$163,471	$25,467	11,046	$28,452	$2.57	19.1%

*Exclusive of Proprietor's Salary; a—Below Standard; b—Net Profit 1% to 5% of Sales; c—Net Profit Above 5% of Sales.

C.—Sales Volume $75,000 to $100,000

Here again the differential between the a. group and c. group is 6% in cost of goods sold and nearly 3% in total expenses and 9% of average sales of $85,000 equals $7,650 about the difference in total incomes between the two groups. Employees' wages are approximately the same in both groups but outside of the cost of goods sold the villian appears to be higher rents and higher miscellaneous expenses.

D.—Sales Volume Over $100,000

In this group only 4 out of 55 or 7% in comparison with 35%, 20% and 23% for the A. B. and C. groups respectively are below standard. The differential in the cost of goods sold is less than 1% but the differential in expenses is over 7% and 7% of sales of at least $125,000 is a considerable loss in potential total income. The expenses that cause this loss are employees' wages and other expenses. The differential in employees' wages is about 5%, we cannot say why. Are the pharmacies in this group over-staffed? It would seem unlikely since the average employees' wages of 78 pharmacies across Canada with sales volume averaging $127,578 in 1957 was 15.5% of sales for pharmacies in population centres over 100,000 population while 39 with similar sales volume paid out an average of only 10.3% for employees' wages. Perhaps the 4 below standard are all in population centres over $100,000 while the majority of the c. group are in population centres below 50,000 population. Population has not been considered in this analysis.

H. J. FULLER.

WHAT PROFIT IN PRESCRIPTIONS?

By Jack D. Heinz

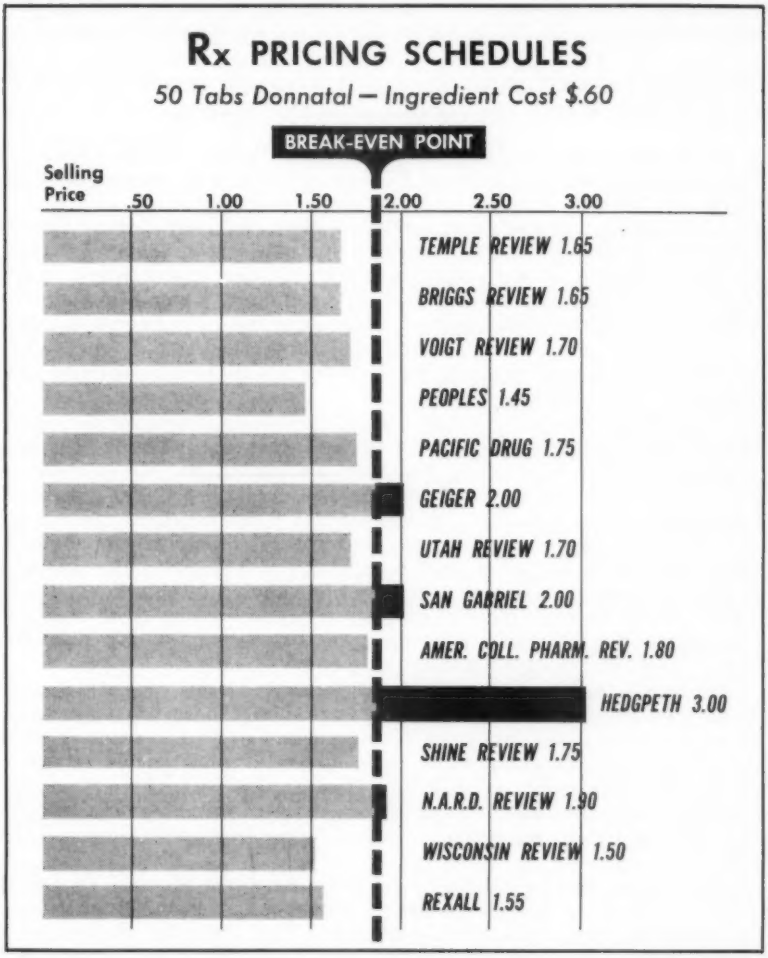
Executive Vice-President Heinz Apothecaries, Salt Lake City, Utah
From an address to the American College of Apothecaries 1958 Convention in Los Angeles

"A 'green pasture' answer is suggested by the various prescription pricing schedules when only the 'cost of ingredients' factor is considered. A different answer results when the 'cost of operation' factor is added. Too often there is too much red in the picture."

The pharmacist must be a college graduate—a reasonably well-educated man—to operate a pharmacy. But when we see how some pharmacists fail at managing the professional operation in their pharmacies, we often wonder how much of their education was absorbed. Do these pharmacists sell their services too cheap? Does cheap professional "merchandise" mean cheap men—a cheap profession? Would there be less red in the green pasture of retail pharmacy if pharmacies were operated by non-pharmacists?

We can draw some rather interesting conclusions by taking the Lilly Digest of 1956 as a source of information. We find that an ave-

Graphic presentation shows profit picture on typical low-ingredient-cost prescription as priced by 14 leading schedules. Only three of the schedules price the prescription at a profit.



rage pharmacy in the United States had a dollar volume of $111,352 and that the prescription department accounted for 29.1 percent of the volume. We also find the total expenses of this average pharmacy to be $32,302. Now, if we take 29.1 percent of the total expenses and charge this to the operation of the prescription department, this should be a reasonable and fair amount. This portion of the total expenses amounts to $9,399. If we take the total number of prescriptions (11,842) that this average pharmacy filled and divide that number into the expense that we charged directly to the operation of the prescription department, we will arrive at a prescription portion of the expense. This calculates out to $0.80 per prescription. In this average

pharmacy the average mark-up in the prescription department was 40 percent. This means that every prescription filled and sold at a retail price of less than $2 was sold at a loss. Currently approximately 55 percent of the prescriptions filled in the United States are filled at a price of $2 or less. In other words, 55 percent were sold at a loss.

"We need an educational program to teach pharmacists in the field about Cost of Operations".

If we examine the Lilly Digest Report further, we find that the more prescriptions a pharmacy fills the greater the gross profit becomes, but the cost of doing business also increases.

It seems to me rather unfortunate that the Lilly Digest Report doesn't try and show a more realistic picture of the pharmacy business than it does. It says that the "Prescription Department is the Heart of the Drug Store." We have thousands of Drug Stores in the United States with "Sick Hearts." But does the Lilly Digest call this to the average pharmacist's attention? Does the Lilly Digest make any constructive recommendations to help the pharmacist correct this situation? It doesn't say a word.

The 1956 American College of Apothecaries Operational Survey showed that the average pharmacy in the survey had sales of $165,223. Prescription sales in these pharmacies amounted to 70.6 percent of sales. Total expenses in these pharmacies amounted to 40.7 percent, or $67,245. If we take 70.6 percent of the total expenses, as we did with the Lilly Digest figures, we find that the prescription department's portion of the pharmacy's expenses is $47,476. The average number of prescriptions filled by the pharmacies in this survey was 42,880. Again by dividing the number of prescriptions filled into the prescription department's allocation of the expenses, we find the average overhead cost per prescription to be $1.11.

The 1956 A.C.A. Operational Survey also shows operating costs for 47 identical pharmacies in 1955 and 1956. These 47 pharmacies had prescription sales that were the equivalent of 78.1 percent of their sales. The total operating expenses of these 47 pharmacies was 43.6 percent of their sales, or $79,449. If we take 78.1 percent of the operating expenses ($61,050 and divide it by the number of prescriptions filled (49,930), we find the cost of filling each prescription to be $1.21.

Reference is now made to "Marketing Research Memos" by David D. Stiles, Director of Market Development of Abbott Laboratories, Inc., dated April 9, 1957. In the memo of that date Mr. Stiles has a "Comparison of Prescription Prices Using 14 Widely Used Schedules." Four of these schedules are representative of the East, six of the West, and four of Mid-west and/or National. Thirteen different prescription items are compared in this memo.

The first item to be compared is a prescription for 3 ounces of Gantrisin Pediatric Suspension. The cost of the ingredient being prescribed is $0.94. To the ingredient cost, an overhead cost of $1.25 (in round figures) is added, and we find that the break-even point is $2.19. It is readily apparent that five of these widely used prescription pricing schedules place a price on this prescription below the break-even point. People's schedule is $0.35 below and the Hedgepath schedule is $1.20 above the break-even point.

The next prescription to be compared is that for 50 tablets of Serpasil, 0.25 mg., cost $2.25. With the cost of operation, the break-even point becomes $3.50. It is readily apparent that all schedules compared price this prescription at a profit.

A prescription for 25 Nembutal 1½ gr. capsules presents an entirely different picture however. Here with an ingredient cost of $0.54 and the operational cost, the break-even point becomes $1.80. Now we find that only four of the fourteen schedules price this prescription at a profit. Here again we find that Peoples has a $0.45 loss and the Hedgepath schedule a $0.70 profit.

A prescription for 50 Donnatal tablets with a cost of $0.60 has a break-even point of $1.85. The memo shows only four schedules pricing this item at a profit, and ten at a loss.

The picture presented by 24 tablets of Empirin Compound and Codeine #2 with a cost of $0.49 is not a healthy one. Again we have only four schedules pricing this item at a profit. It is interesting to note also that the Rexall schedule prices the prescription for Donnatal with a greater ingredient cost at a lower price than it does for the Empirin Compound and Codeine.

The next prescription calls for 12 capsules of Achromycin 250 mg. with an ingredient cost of $3.82. Our break-even point now becomes $5.07. This now becomes a profitable item; all schedules price this prescription at a profit. One wonders perhaps if the Brigg's schedule is not a mis-price as this schedule calls for $10.50 for 12 Achromycin capsules 250 mg.

Now look what happens when we have a prescription with a low ingredient cost: Twenty-four Benadryl capsules 50 mg., with a cost of $0.42 plus the cost of operation, and the break-even point becomes $1.67. Only three of the fourteen schedules price this prescription at a profit.

When we get a prescription for an item with a higher ingredient cost, such as 24 tablets of Equanil, 400 mg., $1.56, we have most schedules back into a profit picture. Peoples schedule calls for a price of $2.80 for this prescription, which is exactly at the break-even point. All the other schedules are pricing this item at a profit.

More comparisons are found in a paper prepared by Mr. H. J. Fuller, Professor of Pharmacy Administration, Faculty of Pharmacy, University of Toronto, titled "Developing the New Philosophy of Professional Fees." Table IV-Basic Data on All Prescriptions by 50c Price Intervals, shows that 15.1 percent of all prescriptions filled are dispensed at a price below $1, and an additional 21.9 percent from $1.01 to $1.50, 18.1 percent from $1.51 to $2.00, 12.8 percent from $2.01 to $2.50. This is a cumulative total of 67.9 percent of all prescriptions being filled at a price below $2.50. There is an additional 9.5 percent filled at a price between $2.51 and $3.00, 4.7 percent from $3.01 to $3.50, 5.7 percent from $3.51 to $4, 3.6 percent from $4.01 to $4.50 and 2.5 percent from $4.51 to $5. The cumulative total of all prescriptions filled at or below a price of $5.00 now reaches a staggering 94 percent. This leaves only 6 percent of all prescriptions with a price over $5.

The National Prescription Survey, 1954-1955, by S. B. Jeffries and I. Greenberg, published in the June, 1956 (Vol. XVII, No. 6) Journal of the American Pharmaceutical Association, Practical Edition, states that at that time 55.1 percent of the prescriptions dispensed were below the break-even point. The break-even point at that time

was calculated to be the cost of the ingredients plus container (10c), cost of labor applicable (56c), and overhead costs per prescription (25c), or a total of 91c. If overhead cost were this high in 1954-1955, they are certainly as high or higher now than the ones that have been calculated from the 1956 A.C.A. Operational Survey.

It is apparent that the average pharmacist or proprietor of a pharmacy has not taken the time to figure out what it costs to fill a prescription or is overlooking some expense factors. The Carolina Journal of Pharmacy recently published an analysis of prescription prices of 61 western North Carolina pharmacies. It is amazing to note that to the cost of the ingredients, an overhead cost of only $0.60 was added to determine the break-even point. It is interesting also to note that certain prescriptions were priced lower because of a fancied reason of competition. In this case, the pharmacist allows his competitor to price his prescription.

Without a doubt there are competitve conditions that force us to peg a prescription at a lower than normal price. Quite frequently it is not our competitor who is pricing the prescription low, but some manufacturer's representative detailing a "me-too product" on price rather than quality or product merit. However, this should not be a reason for a pharmacist to price a prescription to the point where he has failed to break-even.

Some sloppy pricing is the result of not keeping up with price changes. This is only carelessness or laziness.

An educational program to educate the pharmacist in the field as to the cost of doing business is necessary. Just who is going to carry the ball, and how the pharmacist will reach him, I do not know. The manufacturer is going to have to help or soon he may not have the multitudes of points of distribution that he now enjoys.

One thing is certain: We are going to have to recognize that because of increases in labor as well as other costs, changes are going to have to be made. We can no longer, particularly on inexpensive medications and small quantities, use the old rule of "double the cost of the ingredients plus the container" to arrive at the selling price.

We **must** revamp and modernize our thinking if there is to be profit in prescriptions.

The time for pharmacy to come of age as a profession is now.

C.Ph.A. PRESIDENT'S MESSAGE TO ONTARIO PHARMACISTS

As you know, we are now committed to a Building Fund Campaign for construction of a new Canadian Centre of Pharmacy.

The campaign is organized and timed for rapid-fire action by every one of us, and that means literally **every** one of us because of the "Pyramid Plan" of the campaign. It is, briefly, a chain of individual efforts expanding steadily to every section of Canada and a break in that chain at any point would be disastrous.

You will all receive printed material explaining the campaign operation and the responsibilty it imposes on us as individuals over a very short space of time and with a minimum of effort on our part. I will not go into the details therefore, at this point, except to emphasize that as each level of our "Pyramid" is built your part in it is a "MUST".

The purposes of the new Centre are probably of more direct interest to you here today **than to any other group of Pharmacists in the country** simply because you gentlemen in Ontario will have greater

opportunity than any other group to utilize the physical facilities of the Centre. Consequently you also have a greater responsibility than any other area to make absolutely certain that we don't fail in our campaign objective of $300,000.

Located in the Toronto area, the new Centre is designed of course to serve all Pharmacists in whatever part of the country they practice, but for you particularly its conveniences, services and amenities will be within easy geographical reach. You may wish to know just what these advantages can mean to you as Ontario and Toronto area Pharmacists.

First it is planned to include boardrooms and conference facilities available for any purpose connected with Pharmacy, including meetings of committees, allied pharmaceutical bodies, and to provide rental space for any Pharmacy activity choosing to make the Centre its administrative headquarters.

Only one of the 3½ storeys proposed will be used as the national offices of the Canadian Pharmaceutical Association, so that the balance of the building can include a Museum of Pharmacy, displays, a press and public relations office, and many other features designed for social, professional and business activities connected with our affairs.

A foyer will serve as a convenient meeting place for us as individuals; a lounge is planned also, and while the whole building will be highly utilitarian, it has a tremendous intangible value as a lasting memorial to our public services to health and welfare. The Museum and display areas are visualized as features that could be open to the public and, in conjunction with a long range, well-planned public relations program, should go far to impress on the public the prestige, dignity, and public-service aspects of our profession.

I would emphasize however, that the sketches and blueprints shown in our Building Fund Campaign Brochure are NOT FINAL. It may be desirable to rearrange certain features and their locations within the Centre but you may be sure that the final result will reflect extremely careful planning from both a utility standpoint and to achieve a handsome appearance of both the interior and exterior.

Briefly, we ask your UTMOST support, financially and in terms of your own efforts in view of the fact that you, more than any other Pharmacists in Canada will derive practical and extensive day-to-day benefits from the Centre merely because of your proximity to its location.

One more word. Very worthy community campaigns are being carried out at the same time as our own fund-raising campaign. Many of these deserve your wholehearted support BUT OUR CAMPAIGN IS THE MOST IMPORTANT SINGLE VENTURE ATTEMPTED IN MORE THAN 50 YEARS OF OUR PROFESSION.

So I suggest we place first things first by giving OUR campaign top priority.

I feel confident that you will strive to the utmost in this vital step we have taken in the knowledge that you are participating in the creation of a permanent memorial to Pharmacy — one that your children and theirs will remember. They will also remember that YOU were a Co-Founder of the Canadian Institute of Pharmacy.

J. D. ALEXANDER.

(This speech was given at the Drug Trading Dinner, Royal York Hotel, October 8, 1958).

VITAMINS AND THE PHARMACIST

Dr. Ross M. Baxter

Introduction:

Since vitamins are present in foods, and may be added to certain foods, foods, therefore, may serve as dietary sources of a number of the vitamins. Products containing vitamins within certain well-defined limits may also be used as a source of vitamins and thus, these products may be used for the prophylaxis of vitamin deficiencies. On the other hand, products containing the vitamins at higher concentrations may be used for the treatment of vitamin deficiency conditions or in those cases where higher levels are deemed desirable by the physician and are then considered, whether used alone or in combination, as therapeutic agents. It is necessary, therefore, that products containing these higher concentrations of the vitamins be labelled "For Therapeutic Use Only'. It is important then that the objectives of the use of vitamins in prophylactic and therapeutic concentrations be clearly understood. It would also appear essential that those who are responsible for making available to the public the prophylactic and therapeutic formulations of vitamins should, therefore, have an adequate knowledge of the essential functions of these substances in the body. The incidence of vitamin deficiencies and the circumstances under which deficiencies may be manifested even though adequate amounts of vitamins are present in the diet. This, of course, presumes that the product made available is one containing the vitamin or vitamins in the proper concentration or concentrations and in a form in which they will be stable for a reasonable period of time.

Since vitamins are available to the public other than on prescription it is apparent that their availability should be restricted to channels where they may be made available with a discretion which has been conditioned by the most recently available scientific findings. In light of his roll in the public health professions and by virtue of his training, it would seem that the pharmacist is a logical person to be responsible for the discreet and controlled distribution of vitamins. This, therefore, imposes on the pharmacist a degree of responsibility which should not be taken lightly and one that makes it incumbent on the pharmacist to assure that discretion and discrimination are used by a qualified individual in advising a customer on what can or cannot be expected from taking vitamins. If this criterion were adhered to, the best interests of the public and the profession of pharmacy would be more nearly served. The problem of the distribution of vitamins and other public health agents has been a continuing one. Recent attempts in Ontario to have vitamins placed in Schedule "B" of the Pharmacy Act and in the United States to reclassify vitamins as

foods for tax purposes (1) emphasizes the continuing need for an awareness of the pharmacist's responsibilities to ensure that these agents are not distributed indiscriminantly. A statement (2) made some fourteen years ago appears as pertinent today as then:

"Whether Pharmacy is to assume its rightful place as a profession, and its proper role in professional practice and responsibility—depends in great part upon the interpretation that pharmacists place upon the distribution of vitamins, hormones and other potent public health agents."

The importance of avoiding indiscriminate distribution of vitamins has been emphasized in the following statement (1):

"Characterization of one of medicine's vital weapons against disease as "foods" (even though for tax purposes) would have tended to destroy in the minds of some people, confidence in the physician and the therapeutic agents he orders".

With these thoughts in mind then, let us review some of the pertinent and presently applicable aspects of vitamins.

Stability of Complex Vitamin Preparations

The pharmacist, it would seem, should be particularly aware of and concerned with the instability of certain vitamins, when formulated alone or in combination with a number of other vitamins plus inorganic salts. Reports (3, 4, 5) have indicated that multivitamin preparations may often be below strength in one or more of vitamins present at the time they are sold by the pharmacist. The above reports also pointed out that multivitamin preparations of pharmaceutical firms who carried out adequate control procedures were more likely to meet label claims than were those manufactured without proper control procedures. It is, of course, not possible for the pharmacist to periodically assay all preparations of which he stocks. However, it is possible for the pharmacist to assure himself that he is selling a vitamin product which meets label claims as to potency by making available to his customers a product of a manufacturer who has made a sincere attempt to assure the potency of the product for a reasonable shelf-life. It also is the pharmacist's responsibility to assure that the product does not remain on his shelf beyond the shelf-life of the constituents of the product. With the co-operation of the manufacturer it would seem possible that the potency of the product can be relied upon with a reasonable degree of assurance. With advances in control procedures (6) it is now possible for manufacturers to predict the shelf-life of a vitamin preparation by using accelerated storage tests. Thus, if an expiration date is used it will be possible for the pharmacist to assure himself that the product will still meet label claims at the time it is made available to the customer whether on precription or not. It should be borne in mind that this responsibility rests with both the pharmacist and the pharmaceutical manufacturer.

Prophylactic and Therapeutic Dosage Levels

As mentioned earlier the use of vitamins may be for either prophylactic or therapeutic uses. It is obvious that smaller amounts of the vitamins will be necessary for preventative or maintenance purposes. The prophylactic use of vitamins may consist of eating adequate amounts of foods which serve as an excellent or good source of the

vitamins in question. In addition, vitamins may be added to certain foods to ensure that they serve excellent or good sources for the specified vitamins. Lastly, pharmaceutical preparations are available which contain maintenance or preventative dosages of single or a number of vitamins. It can be well imagined that unless rather stringent regulations respecting the amounts and number of vitamins which may be added to foods were in force, a considerable degree of misrepresentation might take place. It is for this reason then that the Food and Drugs Act contains regulations governing the use of vitamins in foods. These regulations (Part D, Division 3, Sections D-03.001, D.03,002, D.03.003) specifically state the amounts of certain vitamins which must be present or added to foods in order that a claim may be made for the food or foods as serving as an excellent or a good dietary source. The latter section (D.03.003) limits the amount of a particular vitamin which may be added. Section D.03.005 states the amounts of certain vitamins contained in a food or drug represented as containing such and recommended for children under six years of age. Products containing vitamins in excess of the amounts stated in Section D.03.006 must be labelled for "therapeutic use only". The regulations are concerned with assuring that adequate amounts of vitamins are present if a label claim for their presence is to be made.

The following formulas (7) indicate the amounts of the various vitamins which are recommended for maintenance dosages in adults (Formula I) and therapeutic dosages (Formula II).

Formula I		Formula II	
Thiamine Hydrochloride	2 mg.	Thiamine Hydrochloride	10 mg.
Riboflavin	2 mg.	Riboflavin	10 mg.
Niacinamide	20 mg.	Niacinamide	100 mg.
Ascorbic Acid	50 mg.	Calcium Pantothenate	20 mg.
Calcium Pantothenate	5 mg.	Pyridoxine Hydrochloride	2 mg
Pyridoxine Hydrochloride	0.5 mg.	Folic Acid	1.5 mg.
Folic Acid	0.25 mg.	Ascorbic Acid	300 mg.
Vitamin B_{12}	2 mg.	Vitamin B_{12}	4 mg.
Vitamin A	5000 units		
Vitamin D	400 units		
Vitamin K	2 mg.		

Specific Indications for Vitamin Supplementation

Of all the stages of life, childhood represents the one in which the body is changing most rapidly and the one in which the need for nutrients and vitamins is great. The well established and accepted use of vitamin supplements for infants has seen few modifications in recent years. The use of (8) multivitamin preparations in newborn infants from the day of birth until the day of discharge from the hospital reduced the percentage of newborn infants that showed an initial weight loss. A number of infants exhibited skin eruptions indicating that multivitamin preparations were not as well tolerated at this early age as later. The use of vitamin B_{12} to increase appetite and growth in underweight children has produced variable results.

Due to the increased need during growth and due to its low stability, it appears that the incidence of scurvy may be higher than generally realized. Three recent reports (9, 10) (26) indicate concern for

the increasing incidence of scurvy both in Canada and the United States. One of these, a report (9) from the Faculty of Medicine, University of Toronto and the Research Institute, The Hospital for Sick Children ended with certain specific recommendations which should be of interest to the pharmacist. They are as follows:

1. Use of the press, radio and other means of public communication to give parents a better understanding of the nutritional needs of the infant.

2. Emphatic and more specific advice from doctors concerning the value of orange juice in infant nutrition, and insistance upon one specific vitamin C supplement if sufficient orange juice is not taken daily.

3. Instruction of the parent by informed pharmacists concerning the vitamin C content of the various vitamin preparations on the market.

4. Re-emphasis by public health authorities and by the physician of the virtues of breast feeding.

5. The incorporation of vitamin C into certain foodstuffs commonly consumed by infants. In this regard, due consideration must be taken of the instability of vitamin C in non-acid solutions.

As the specialized field of geriatric medicine continues to develop it would appear that the use of supplementary vitamins will become more routine as it becomes a more generally accepted fact that subacute vitamin deficiencies are not uncommon in the older age groups (11). Rafsky and Newman (12) have suggested that the daily intake of vitamins can be doubled for the older individual. A common dietary fault (13) of older persons is to increase carbohydrate intake and to reduce other portions of the diet, particularly protein, which are often good sources of the B complex vitamins. Increased intake of carbohydrate also will create an increased need for thiamine. It is not intended at this time to review the role of vitamins in prevention or treatment of the degenerative diseases associated with aging. Recently (14) however, a rationale has been indicated for the use of ascorbic acid in the prevention and treatment of atherosclerosis. Nicotinic acid (15) in daily doses of three grams was shown to have a definite blood cholesterol lowering effect.

During the normal adult period of life it appears that an adequately balanced diet will supply the necessary daily requirements of most of the vitamins. However, a number of conditions may develop for which there are indications of a need for vitamin supplementations. These conditions are referred to as stress conditions and, of course, may occur during any period of life. A condition of stress may arise as the result of an infectious condition, injury, prolonged illness of infectious or other origin, excessive physical and/or mental activity. The use of the so-called stress formulas in which the B complex vitamins are combined with an antibiotic are examples of such a use in infectious conditions. Zintel (16) has indicated that during a serious illness a young adult requires from 3 to 10 times the amount of various vitamins required for maintenance during periods of good health. Another and specific condition of stress is pregnancy where the demands for vitamins, calcium and iron, etc. are considerably increased. The use of vitamin supplements during pregnancy are routine today and the formulas are fairly well standardized. The major change in this type

of formula has been in the reduction or elimination of phosphorous from the formula to reduce the incidence of leg cramps.

Specialized Uses of Vitamins

1. **Nicotinic Acid and Thyroid Function.** In studies of the effect of nicotinic acid on blood cholesterol levels it was observed that the basal metabolic rate was increased. At a dosage level (17) of three grams per day the action resembles thyroxin and even more a derivative of triiodothyronine.

2. **Vitamins and Glutamic Acid in Mental Patients.** A number of papers have appeared which indicate that glutamic acid and B complex vitamins are of value in the treatment of aged psychotic patients. Nicotinic acid and its derivatives are considered of value for their vasodilator effect on the cerebral vascular system. (18).

3. **Vitamin Supplements and Protein Hydrolysate in Muscular Dystrophy.** Reports have indicated that ingestion of protein hydrolysate together with vitamins produced clinical improvement in muscular dystrophy. However, it has been reported by other workers (19) that the effect of these agents is difficult to evaluate in this condition.

4. **Vitamin C and Vitamin K in Preventing Postoperative Bleeding after Tonsillectomy.** It has been well established that adequate amounts of vitamin K are necessary for normal clotting of blood. Vitamin C has been shown to definitely accelerate wound healing after various types of surgery. The use (20) of those two vitamins to lower the incidence of postoperative bleeding after tonsillectomy has further verified their beneficial effect. A.S.A. which exerts an anticoagulant effect did not increase bleeding in those patients who had received adequate amounts of ascorbic acid and vitamin K.

5. **Vitamin C (Ascorbic Acid) and Liver Disease.** Ascorbic acid has an influence on the hepatic reticulin and collagen formation (21). It is considered that ascorbic acid is a factor ranking in importance to cysteine and choline in nutritional liver disease, although it exerts its effect in a different manner.

6. **Pyridoxine in Nausea and Vomiting of Pregnancy.** An evaluation (22) of the current status of therapy in nausea and vomiting of pregnancy indicates that the administration of pyridoxine (Vitamin B_6) may be of some value in the treatment of certain types of vomiting of pregnancy. The evaluation however, concludes by stating that chlorpromazine has shown considerable promise in the treatment of vomiting of pregnancy which does not respond to other agents (pyridoxine(anti- motion sickness drugs).

7. **Hypervitimization Therapy of Patients with Cancer.** Massive doses of Vitamin A and C has been suggested (23) as increasing the defensive powers of patients suffering from carcinoma. However, no evalulation of the relative effectiveness of this type of therapy can be given and no beneficial results were claimed.

8. **Flavonoids (Vitamin-P like compounds) in Human Nutrition.**

The Council on Foods and Nutrition and Council of Drugs of the American Medical Association in an evaluation of bioflavonoids (replaces term Vitamin-P) state that the high hopes once held for flavonoids as important metabolites have not materialized. Evidence is

considered lacking to indicate a nutritional function. Claims for a therapeutic value (in common cold, capillary permeability, pregnancy, hypertension) have not been supported with experimental data from well-controlled studies. It is, therefore, concluded that flavonoids are of little or no value in the treatment of disease.

Toxicity of Vitamins

Although as a group, vitamins are relatively non-toxic compounds, it should be remembered that they are potent substances and that their indiscrimate use can lead to toxic manifestations. This applies particularly to vitamin A, Vitamin D. A number of cases of toxic manifestations from high dosage levels and prolonged usage have been reported for both vitamins A and D. A number of cases of hypervitaminosis A occurring in children and adults (24) indicate that self-medication with vitamin A is usually involved. A woman manifested chronic hypervitaminosis A after self-medication for acne with 160,000 to 180,000 units of vitamin A for over seven months.

Excessive administration of vitamin D can cause serious effects in humans (25). It has been stated that these effects are manifested when over 30,000 I.U./day in infants, 50,000 I.U./day in children and approximately 150,000 I.U./day in adults are ingested. The toxic effect of vitamin D is made more serious if calcium and phophorus intake has also been excessive.

These examples serve to emphasize the possible dangers associated in self-medication using vitamins.

REFERENCES

1. McHargue, W.R., Am. Prof. Pharm., 10, No. 6; 543, 1944.
2. Franzoni, F.R., J. Am. Pharm. Assoc. Sci. Ed., XVI, No. 10, 616, 1955.
3. Campbell, J.A., Canad. M. A. J., 68, 103, 1953.
4. Campbell, J.A. and McLeod, H.A., J. Amer. Pharm. Assoc. Sci Ed., 44, 263, 1955.
5. Campbell, J.A., J. Amer. Pharm. Assoc. Sci. Ed., 44, 598, 1958.
6. McLeod, H.A., Pelletier, O., and Campbell, J.A., Canad. Pharm. J., 97, No. 3, 173, 1958.
7. Therapeutic Nutrition, National Academy of Sciences, N.R.C. Publication, No. 234.
8. Schwartzman, J., et. al., Archives of Pediatrics, 68, 417, 1951.
9. Warren, S., et. al., Canad. M. A. J., 78, 177, 1958.
10. Woodruff, C., J. A. M. A. 161, 448, 1956.
11. Monroe, R.T., Diseases in Old Age, Harvard University Press, p. 281, 1951.
12. Rafsky, H.A., and Newman, B., Geriatrics, 2, 101, 1947.
13. Stieglitz, E. J., J.A.M.A., 142, 1070, 1950.
14. Willis, G.C., and Fishman, S., Canad. M.A.J., 72, 500, 1955.
15. O'Reilly, P.O., ibid, 78, 402, 1958.
16. Zintel, H.A., Am. J. Clin. Nutrit., 3, No. 6, 501, 1955.
17. Hoffer, A., Canad. M.A.J., 77, 965, 1957.
18. Barrabee, P., Postgrad. Med., 19, 485, 1956.
19. Donaldson, J S.., A.M.A.J. Dis. Child., 91, 449, 1956.
20. Harkins, H.P., Ann. Otol. Rhin. and Baryng. 64, 1137, 1955.
21. Willis, G.C., Canad. M.A.J., 76, 1044, 1957.
22. Kautz, H.D., J.A.M.A., 160, 208, 1956.
23. Schneider, E., Medizinische No. 5, 183, 1956.
24. Elliott, R.A., and Dryer, R.L., J.A.M.A., 161, 1157, 1956.
25. Hollinger, H.Z., and Pattee, C.J., Canad. M.A.J., 75, 941, 1956.
26. Grewar, D., Canad. M.A.J., 78, 675, 1958.

R. M. BAXTER

John Graham Nairn

JOHN GRAHAM NAIRN has joined the staff of the Faculty of Pharmacy, University of Toronto as Assistant Professor in Pharmacy.

Mr. Nairn was born in Toronto and attended Humewood Public School and Vaughan Road Collegiate Institute. He received the B.Sc. Pharm. degree from the University of Toronto in 1952. He has been working for his Ph.D. degree in the Department of Chemistry, University of Buffalo.

Pharmacy is a family affair with the Nairns. Professor Nairn's wife is a pharmacist and his father has been a practicing pharmacist in Toronto for many years. Professor and Mrs. Nairn have one daughter.

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"We must revamp and modernize our thinking if there is to be profit in prescriptions".

Annual Fees

New scale of Annual Fees, effective January 1, 1959

Below is the Schedule as adopted by Council at the June session

(2) The fees to be paid under subsection 1 of section 20 of the Act are as follows:

(a) by a pharmaceutical chemist, $15.00;

(b) by a pharmaceutical chemist who is owner or manager of a pharmacy in addition to the fee paid under clause (a), $10.00;

(c) by a pharmaceutical chemist who is a director of a corporation operating a pharmacy, in addition to the fees paid under clauses (a) and (b), $25.00, and

(d) by a person or corporation operating more than one pharmacy, for each additional pharmacy, $25,00.

This means that the new fees will be as follows:—

PHARMACEUTICAL CHEMIST	**$15.00**
OWNER OR MANAGER	**25.00**
DIRECTOR	**25.00**
BRANCH	**25.00**

The increases were made necessary by the general rising cost of operations. During the past ten years, office costs have doubled. The staff has been increased from two to five. Inspection costs have doubled. Printing costs have doubled. Council and Committee costs have doubled. Grants to the Canadian Pharmaceutical Association have doubled.

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